



Virginia Department of Game and Inland Fisheries Guidelines for the Use of Mosquitofish for Mosquito Control



What are mosquitofish?

Small fish of the genus *Gambusia*, 20-40 mm in length, that bear live young and have an upturned mouth that is adapted for feeding on the water's surface. Under some conditions, they are effective for mosquito control because they are voracious feeders.

Where are mosquitofish found?

The eastern mosquitofish, *Gambusia holbrooki*, is native to Virginia and occurs throughout the Atlantic Slope drainages of the state. It is widespread in the Coastal Plain and has been documented in the eastern Piedmont rivers westward to about U. S. Route 29. Several records documenting the species in western Virginia are likely the result of human introductions. The western mosquitofish, *Gambusia affinis*, occurs in midwestern and western states.

Are they effective for mosquito control?

Research has not provided consistent evidence that *Gambusia* are effective at controlling mosquito populations, with some studies reporting excellent control and others reporting no control at all. Their efficacy in many situations appears questionable at best and is likely to result in a false sense of security. Eliminating artificial sources of standing water, when possible, is still the best way to control mosquitoes. Mosquitoes cannot be completely eliminated by any control method, so it is important to wear protective clothing and use insect repellent as needed.

What are appropriate uses for *Gambusia*?

Gambusia may be somewhat effective in artificial systems that don't contain natural mosquito predators, including some stormwater management facilities, golf course ponds, some drainage ditches, artificial containers (e.g., ornamental ponds and birdbaths), excavated sites (e.g., farm ponds), sewage lagoons, and wastewater facilities. It is important that these artificial waterbodies do not flow into natural systems, in order to prevent *Gambusia* from escaping into adjacent waters.

Are there risks to using *Gambusia*?

As with many other pest control methods, there are risks associated with using *Gambusia*. Native amphibian, fish, and aquatic insect populations can be severely reduced or eliminated by the introduction of *Gambusia*. This occurs through predation and through competition for food. Many native amphibians, including some threatened and endangered species, successfully breed only in fish-free, seasonal pools and would be significantly impacted by the introduction of *Gambusia*. In some areas, introduced *Gambusia* may displace native fish species (e.g., killifishes and topminnows) regarded as better or more efficient mosquito control agents. *Gambusia* have been shown to reduce largemouth bass populations through predation. Introduction of *Gambusia* can actually worsen a mosquito problem by eliminating natural mosquito predators.

How do we obtain a permit to stock and release *Gambusia*?

County or city mosquito control programs may apply for a Scientific Collection Permit from VDGIF to possess and release *Gambusia holbrooki* into artificial waterbodies. Each application will be reviewed for potential impacts to native aquatic species, particularly those that are threatened or endangered. Use of *Gambusia* will be authorized only in areas within their native range and for appropriate uses (see above). Permit conditions may include prohibiting release within a certain "exclusion zone"; requiring pre- and post-release mosquito monitoring; and reporting of release dates, numbers, and locations. Private landowners and contractors wishing to obtain *Gambusia* must work through their local mosquito control department. VDGIF will issue permits only to county or city mosquito control programs.

Where can we obtain *Gambusia*?

Fish currently may be obtained only from the York County Mosquito Control Department, and only by counties or cities permitted by VDGIF.